Two (X,N) Lists Statistics Worksheet

This worksheet allows to perform basic statistic calculations over two previously created lists, which must be in the form of : sample value and its frequency (a "**(X,N) List**").

[X-List ▶]	Select a previously created (X,N) List for the 'X' variable.
[Y-List ▶]	Select a previously created (X,N) List for the 'Y' variable.
[Curve Fitting]	Opens the "**Two (X,N) Lists Curve Fitting**" worksheet.
[N]	Number of samples in the "X" and "Y" lists (minimum value of both).
[∑x]	Calculates the sum of the "X" values.
[∑y]	Calculates the sum of the "Y" values.
[∑x²]	Calculates the sum of the squares of the "X" values.
[∑y²]	Calculates the sum of the squares of the "Y" values.
[∑x·y]	Calculates the sum of the products of "X" and "Y" values.
[Corr.]	Calculates the correlation coefficient of "X" and "Y" values.
[G.St.Dev.]	Calculates the standard deviation of "X" values with "Y" frequencies.
[W. Mean]	Calculates the weighted mean of the "X" values with "Y" weights.

Example:
For the last six weeks the following data was collected: minutes of advertising purchased in local radio and the corresponding total sales:

Week	Minutes	Sales
1	2	1.400,0
2	1	920,0
3	3	1.100,0
4	5	2.265,0
5	6	2.890,0
6	4	2.200,0

Create the required data list and calculate all the statistical values included in the menu.

Solution :
With the "**(X,N) List Editor**", create the "Minutes" and "Sales" lists.

Creation of the "Minutes" list

Keys	Comment
[List ▶] New	Creates a new empty list.
[Add] 2 **[Enter]** **[Add]** 1 **[Enter]** **[Add]** 3 **[Enter]** **[Add]** 5 **[Enter]** **[Add]** 6 **[Enter]** **[Add]** 4 **[Enter]**	Enters the Minutes #1 in the list. Enters the Minutes #2 in the list. Enters the Minutes #3 in the list. Enters the Minutes #4 in the list. Enters the Minutes #5 in the list. Enters the Minutes #6 in the list.
[List ▶] Name…	Shows a Name entry form to name the list
Type "Minutes" **[Done]**	Name the list "Minutes"
[Save]	Save the "Minutes" list

Creation of the “Sales” list

[List ▶] New	Creates a new empty list.
[Add] 1400 **[Enter]** **[Add]** 920 **[Enter]** **[Add]** 1100 **[Enter]** **[Add]** 2265 **[Enter]** **[Add]** 2890 **[Enter]** **[Add]** 2200 **[Enter]**	Enters the Minutes #1 in the list. Enters the Minutes #2 in the list. Enters the Minutes #3 in the list. Enters the Minutes #4 in the list. Enters the Minutes #5 in the list. Enters the Minutes #6 in the list.
[List ▶] Name…	Shows a Name entry form to name the list
Type “Sales” **[Done]**	Name the list “Sales”
[Save]	Save the “Sales” list

Now, perform the required statistics calculations:

[X-List ▶]	Select the “Minutes” list for “X” variable.
[Y-List ▶]	Select the “Sales” list for “Y” variable.
[Corr.]	Calculates correlation. **R^2 = 0.94**
[G.St.Dev.]	Calculates the standard deviation. **G.SD = 1.63**
[W. Mean]	Calculates the weighted mean. **W.Mean = 4.13**
[N]	Calculates the Number of samples. **N = 6**
[∑x]	Calculates the sum of the ‘Minutes’. **∑x = 21.00**
[∑y]	Calculates the sum of the ‘Sales’. **∑y = 10,775.00**
[$\sum x^2$]	Calculates ‘Minutes’ sum of squares. **$\sum x^2$= 91.00**
[$\sum y^2$]	Calculates ‘Sales’ sum of squares. **$\sum y^2$= 22,338,725.00**
[$\sum x \cdot y$]	Calculates ‘Minutes’ times ‘Sales’ sum. **$\sum x \cdot y$ = 44,485.00**